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Title:	Production Qualification Training Course 2 of 8 Production Qualification & Engineering Evaluation (EE) Plan
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Production Qualification Training
Course 2 of 8

Production Qualification &
Engineering Evaluation (EE) Plan

Joint Initiative: W-8 Group and ALDW-DAQ

Curriculum Overview

This curriculum is intended to:

- Teach you about Production Qualification & the Engineering Evaluation (EE) Plan
- Explain the course subject in detail
- Provide references and guides that will help beyond this training

Utrain Course	Procedure	Title	Course #
RR 49297	W-SE-0008	Engineering Authorization System	Course 1
RR 49256	W-SE-0044	Production Qualification Procedure	Course 2
	W-DG-0003	Engineering Evaluation Plan Template	Course 2
	W-DG-0004	EE Data Package Template	Course 2
	W-DG-0005	Engineering Evaluation (EE Data Package Checklist)	Course 2
RR 49262	W-SE-0046	Administrative IER and SIER/B Procedure	Course 3
RR 49272	W-SE-0051	Definition IER and SIER Procedure	Course 4
RR 49273	W-SE-0052	DER, AER, CER Procedure	Course 4
RR 49268	W-SE-0048	Re-evaluation Notices (RENs) Procedure	Course 5
RR 49256	W-SE-0049	Engineering Evaluation Release Procedure	Course 5
RR 49271	W-SE-0050	Qualification Evaluation Release Procedure	Course 5
RR 49298	W-SE-0047	Advanced Change Orders, Final Change Orders, and Engineering Change Requests Procedure	Course 6
RR 49257	W-SE-0045	SXN/SXR Procedure	Course 7
RR 53083	TBD	Engineering Evaluation Overview	Course 8
	W-DG-0002	EA Cheatsheet and Checklist Desktop Guide	All

Training Objectives

- At the end of this training, you will:
  - Become familiar with Production Qualification & the Engineering Evaluation (EE) Plan
  - Understand requirements that properly authorize the product or processes and resulting products for National Nuclear Security Administration (NNSA) directive schedule usage
  - Know where to gain assistance in executing engineering authorizations
- What this training will not do:
  - Authorize you to author or approve EAs
  - Train you on how to navigate the EA tool (Arbortext), PDMLink, or PRIME

Production Qualification & the Engineering Evaluation (EE) Plan

- A Product Realization Team (PRT) responsibility is to assign a qualification status to components

- The PRT makes qualification decisions based on information necessary to qualify products or processes

- Qualification activities are planned and executed by the PRT using an Engineering Evaluation (EE) team

LANL has instituted a standardized process and framework to ensure the consistency of the activities for Production Qualification

Engineering Authorization System Overview

The Engineering Authorization (EA) System provides a formal communication method among M&O contractors, including configuration control and record management of EAs

EAs authorize actions that affect product definition and related product and document information related to development, production, surveillance and dismantlement activities

The LANL PRT guides an Engineering Evaluation (EE) Team to plan, evaluate, and document that the production processes and products meet product definition requirements

DPBPS- T040
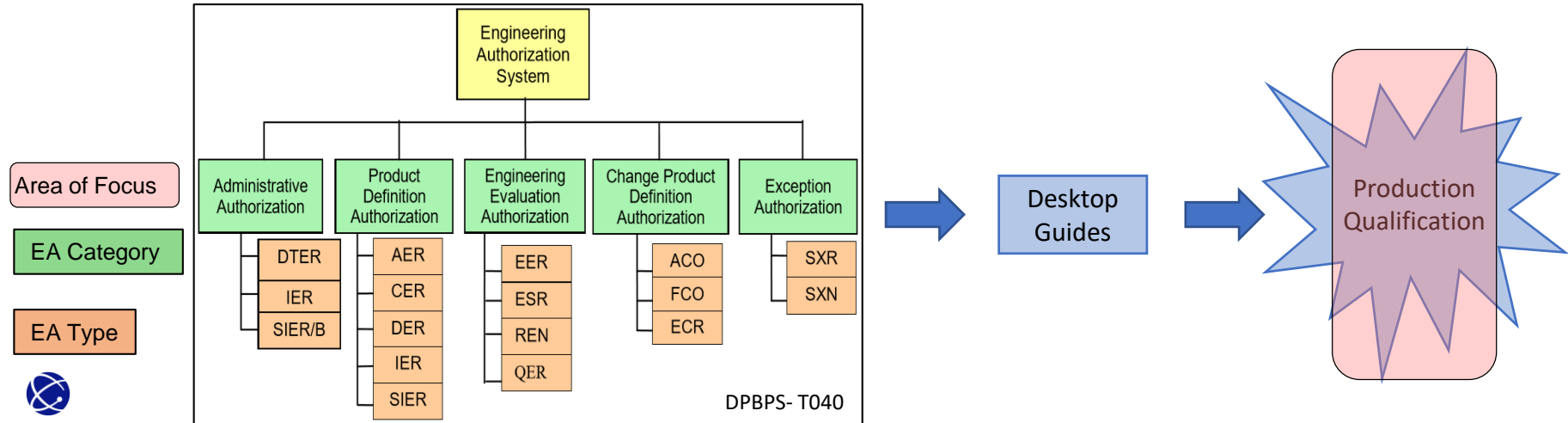
Process Overview of Production Qualification per W-SE-0044U
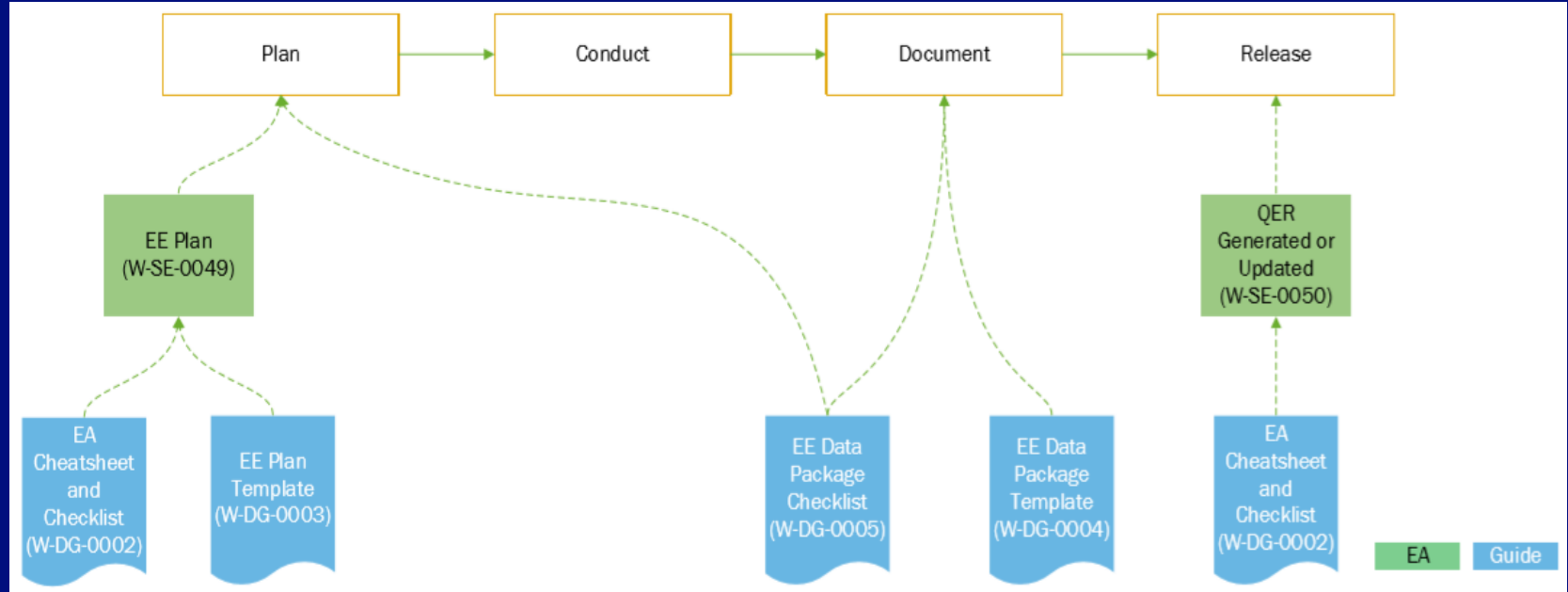
Planning

- When the Product Realization Team (PRT) is ready to begin Engineering Evaluations (EE), an EE team is formed

- The PRT forms the EE Team with membership appropriate to the evaluation scope and activities. The EE Team is lead by the W-8, Production Liaison, member. System Engineers, Quality Engineers, Product Engineers and Process Engineers typically make up the rest of the team. Participation from both the DA and PA is required

- The EE Plan is created to provide the requirements, activities, and documentation necessary to qualify production
  - Templates and Desktop Guides have been created for the EE Team to help facilitate qualification
  - The EE Data Package Checklist, W-DG-0005, is used to ensure that all aspects of potential qualification activities are considered and to track completion status
  - Additional EE Plan guidance can be found in W-SE-0049U, EER Procedure

- All Production qualification activities that are authorized by QER will use an EE Plan
  - EE Plan format is provided in W-DG-0003, EE Plan Template

W-DG-0003 – EE Plan Template Usage

- Text in black is content that is expected to be kept in completed EE plans, including section numbering and titles.
- [Bracketed green text is to be replaced with the identified specific information]
- << Bracketed red text is explanatory guidance content for the author and is to be removed before releasing the EE plan as a draft. >>
- Blue text is example content offered to explain expected detail and offer formatting suggestions. This is expected to be tailored for an EE plan.

1.2.1   Product Realization Team (PRT)

The [Product Name] is managed by the LANL [Top-level PRT Name] and the [sub-level PRT Name].

Sample blue text for the scoping section. The widget product is managed directly by the Functionary Sub-PRT, which is a member of the Something PRT.

<< Ensure that this section accurately identifies the PRT authority for the product or process that will approve of this document and the associated QER. Identify any PRT relationships that are useful to understand the scope of the QER that may be generated from this EE plan. >>

Conducting and Documenting EE Activities

- Activities are executed according to the EE Plan and evidence is collected for consolidation into the EE Data Package

- The EE Data Package Checklist, W-DG-0005, is used as a tracking tool for the EE Data Package evidence
  - The numbering of EE Data Package Checklist items corresponds to the sections of the EE Data Package and should not be modified

- The EE Data Package Template, W-DG-0004, provides the outline for EE Data Package evidence
  - Evidence compiled through usage of the EE Data Package Checklist is inserted into the corresponding section of the EE Data Package Template

EE Data Package Checklist, W-DG-0005

W-DG-0005 was created as a tracking tool for all categories of evidence obtained during EE activities

- Provides list of items to be considered for inclusion into EE Data Package and suggestions and guidance on expectations for each item.
- Sections on the checklist align with EE Data Package Template (W-DG-0004) and combined usage will generate data packages with consistent structure and information.


Section	SubSect	SubSub	Topic	Items to include	Who	Guidance
1	0	0	Index	An index that lists all documents by number, issue, and title contained in the EE Data Package (bookmarked)		All items are provided as Adobe Acrobat PDFs unless explicitly allowed for certain individual data pieces. These PDFs need to be legible, properly oriented, and reviewed for completeness prior to submitting to Production Liaison.
1	1	1	Summary of EE Data Package	Narrative of the EE package as a whole.		Executive summary
1	2	1	EE Data Package Checklist	Embed a copy of this completed checklist		The checklist and the particular version of the checklist template that was used are to be embedded in the data package.
1	3	1	Contributors to EE Data Package	List of individuals that provided evidence presented in the package		Ensure that the personnel that provided items for this package are recorded to assist with resolving questions or concerns with the data.
1	4	1	QE Lot Summary	Include the serial numbers of the entire QE lot with the breakdown of acceptable and unacceptable product in the QE lot.		The EE plan needs to discuss the definition of a QE lot with consideration of how the PA plans material lots that result in manufacturing lots, that turn into production lots.
1	5	1	EE Issues	List the EE action items and corrective actions taken		List all of the defects/errors/deficiencies observed during the EE activities and the resolutions for each. Include recovery plans actions from any RP-prefix documents that were created or released.
1	6	1	EE Lessons Learned	Include highlights of lessons learned.		Lessons Learned should be focused on solved problems that were identified during the course of the EE that were addressed by systemic changes that are in place and will reduce similar problems. This is not the place to complain about problems that have not been solved.
2	0	0	**Plan**			
2	1	1	EE Team Members	PA Product		The EE team must consist of at least one DA and PA representative. The W-8 responsibility is to document the compliance with qualification requirements and to coordinate the review and approval of the evidentials with the PRT.
2	1	2	EE Team Members	PA Quality		The EE team must consist of at least one DA and PA representative. The W-8 responsibility is to document the compliance with qualification requirements and to coordinate the review and approval of the evidentials with the PRT.
2	1	3	EE Team Members	DA Component		The EE team must consist of at least one DA and PA representative. The W-8 responsibility is to document the compliance with qualification requirements and to coordinate the review and approval of the evidentials with the PRT.
2	1	4	EE Team Members	DA Production Liaison		The EE team must consist of at least one DA and PA representative. The W-8 responsibility is to document the compliance with qualification requirements and to coordinate the review and approval of the evidentials with the PRT.
2	1	5	EE Team Members	DA Quality		The EE team must consist of at least one DA and PA representative. The W-8 responsibility is to document the compliance with qualification requirements and to coordinate the review and approval of the evidentials with the PRT.
2	2	1	EE Activities Logistics	Vendor walkdowns scope		Broadly outline the expected activities and scope of scrutiny that are planned. May include walkdowns, document reviews, vendor visits, schedule, locations. Ensure that lot planning covers requirements that may flow to the vendor so that walkdowns can be scheduled for observations. If there are specific personnel or functions (e.g. PA Quality) that must be involved (and not delegated), identify those requirements in the planning phase to assist with resource management.

EE Data Package Template, W-DG-0004

W-DG-0004 was created to help structure the EE data packages

- Assists with EE Data package creation, completeness, and consistency

- Provides numbered section headings that align with W-DG-0005 EE Data Package Checklist

- Information provided through completion of EE Data Package Checklist (W-DG-005) is inserted into appropriate sections to generate EE Data Package
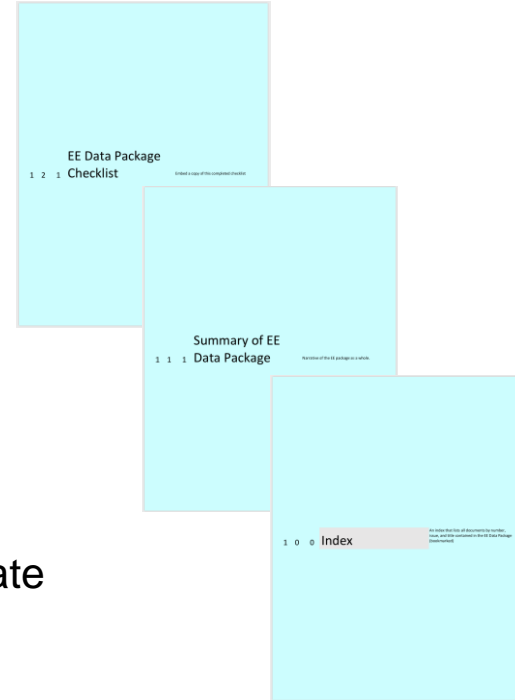
Since these documents will be maintained for life-cycle of the product; it is important for them to be complete and organized. As some product remains in stockpile for decades; the data collected at qualification must be of high quality. Not to mention, Surveillance also depends on this data for studies and testing.

EA Data Package Completion and Release

- Upon completion of the EE Data Package; the Production Liaison releases it into PDMLink

- Production qualification is concluded with a determination of the qualification status to be assigned to the product or process

- The PRT evaluates the information in the EE Data Package against the requirements in the EE Plan and documents the qualification determination in the QER.
  - Additional QER guidance can be found in W-SE-0050, QER Procedure.

- The EE Plan document(s) are updated to reflect the qualification determination, the rationale, and the cross-referenced QER.

Summary

- The EE Plan is created to provide the requirements, activities, and documentation necessary to qualify production.

- Activities are executed according to the EE Plan and evidence is collected for consolidation into the EE Data Package.
  - The EE Data Package Checklist, W-DG-0005, is used as a tracking tool for the EE Data Package evidence.
  - The EE Data Package Template, W-DG-0004, provides the outline for EE Data Package evidence

- The PRT evaluates the information in the EE Data Package against the requirements in the EE Plan and documents the qualification determination in the QER.

References

Number	Title	Website
DBBPS -T040	*Engineering Authorization System*	https://dpbps.sandia.gov/SitePages/homepage.aspx
DBBPS -T046	*Quality Product or Process Business Rules*	https://dpbps.sandia.gov/SitePages/homepage.aspx
W-SE-0008U	*Engineering Authorization System*	https://int.lanl.gov/org/ddw/aldw/office-design-agency-quality/design-agency-procedures/system-engineering-procedures.shtml
W-SE-0044U	*Production Qualification Governing Procedure*	https://int.lanl.gov/org/ddw/aldw/office-design-agency-quality/design-agency-procedures/system-engineering-procedures.shtml
W-DG-0003, -0004, -0005	*Engineering Evaluation (EE) Plans Desktop Guides*	https://int.lanl.gov/org/ddw/aldw/office-design-agency-quality/design-agency-procedures/desktop-guides.shtml

Resources

When you have issues or questions regarding the Engineering Authorization System, there are resources you can go to:

- ALDW Office of Design Agency Quality (ALDW-DAQ)
- Production Liaison Group (W-8)
- Engineering Authorization Team (W-11)
- W- and Q- Division Group Leaders
- This training

Acronyms

DTER	Drawing Transfer Engineering Authorization
IER	Information Engineering Authorization
SIER/B	Special Instruction Engineering Release/B Authorization
AER	Advanced Engineering Authorization
CER	Complete Engineering Authorization
DER	Development Engineering Authorization
SIER	Special Instruction Engineering Authorization
EER	Engineering Evaluation Authorization
ESR	Evaluation Status Release

Acronyms (continued)

REN	Reevaluation Notification Authorization
QER	Qualification Evaluation Authorization
ECR	Engineering Change Request Authorization
ACO	Advanced Change Authorization
FCO	Final Change Authorization
SXN	Specification Exception Notice Authorization
SXR	Specification Exception Authorization
DA	Design Agency
PA	Production Agency
DPBPS	Defense Programs Business Process System
M&O Contractors	KCNSC / LANL / LLNL / NNSS / PX/ SNL / SRS / Y-12

Course 2: Complete